Central Intelligence Agency

Washington D C 20505

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28 March 1997

Mr. James K. Kallstrom
Assistant Director in Charge
Federal Bureau of Investigation
26 Federal Plaza
New York, New York 10278

Dear Mr. Kallstrom:

As you are aware, missile analysts at the Central Intelligence Agency have been working closely with special agents at the Federal Bureau of Investigation during the past eight months in an attempt to examine the hypothesis that a missile caused the TWA Flight 800 disaster on 17 July. Of particular concern to FBI investigators and CIA analysts are accounts from dozens of eyewitnesses who reported seeing an object—usually described as a "flare" or "firework"—ascend and culminate in an explosion.

Our analysis demonstrates that the eyewitness sightings of greatest concern to us—the ones originally interpreted to be of a possible missile attack—took place after the first of several explosions aboard the aircraft. We conclude that almost certainly what these eyewitnesses saw was the crippled aircraft after the first explosion had already taken place.

Our analysis, combined with the total absence of physical evidence of a missile attack, leads CIA analysts to conclude that no such attack occurred.

We are willing to brief you on the details of our analysis at your convenience.

Sincerely,

John C. [redacted]nnon
Deputy Director f[redacted] Intelligence

Enclosure:
Analytic Assessment

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Introduction

On 17 July 1996, Trans World Airlines Flight 800 departed from New York's John F. Kennedy Airport enroute to Paris. Twelve minutes into the flight, as the jumbo jet climbed to its cruising altitude, there was a catastrophic explosion and the Boeing 747 plunged into the Atlantic Ocean 9 miles off the coast of Long Island. All 230 people aboard perished, making it one of the most lethal disasters in commercial aviation history. Hundreds of eyewitnesses in the Long Island area witnessed portions of the event.

Since then, investigators have been working continuously seeking the cause of the explosion. They have focused on three possible causes—a bomb, a missile, or a mechanical failure. Of particular concern to FBI investigators and CIA analysts are accounts from dozens of eyewitnesses who reported seeing an object—usually described as a "flare" or "firework"—ascend and culminate in an explosion. Many people postulated that these eyewitnesses saw a missile destroy the aircraft

At the request of the FBI, CIA weapons analysts were asked to look into this possibility. The CIA conclusion: A missile was <u>not</u> involved. The eyewitness sightings of greatest concern—the ones originally interpreted to be of a possible missile attack—took place after the first of several explosions aboard the aircraft. What these eyewitnesses saw was in fact the <u>crippled aircraft after the first explosion had already taken place</u>.

Analysis

A major complication in determining what happened to Flight 800 was the fact that the flight data recorder and cockpit voice recorder ceased operating just after the initial explosion aboard the aircraft. The data recorder registered no unusual activity prior to the end of its operation. But the voice recorder registered a fraction of a second of "loud noise" just before it ceased operating. National Transportation Safety Board analysts concluded that this was sound from the first explosion—the one that initiated the destruction of the aircraft.

Based on flight recorder data and airport radar tracking, the aircraft's location, altitude, speed, and heading at the instant its recorders ceased operating are known. This information was used to determine the distance and direction of travel of the aircraft with respect to each eyewitness at the instant the aircraft exploded. This, in turn, made it possible

to calculate how long it took sound from the explosion to reach each eyewitness, and to associate what eyewitnesses heard with what they saw.

The concept used here is similar to a technique a person can use to determine how far away a lightning strike is—by estimating how long it takes to hear thunder after the lightning is seen. Because sound in air travels about 1,100 feet per second, an observer who hears thunder five seconds after seeing a lightning strike knows that the lightning is about 1 mile away.

On the evening of 17 July, many eyewitnesses reported hearing a loud "boom" as part of their observations, often followed at varying intervals by one or two smaller "booms." Knowing that the first of these sounds originated when the recorders ceased operating (831:07.5 PM), it was possible to synchronize many eyewitnesses' visual observations with activity aboard Flight 800 by calculating how long it took sound to travel from the known location of the aircraft when it exploded to each of these eyewitnesses.

We can be confident that no sound from the aircraft audible to eyewitnesses was produced before the sound heard at the end of the cockpit voice recording. The closest eyewitness hearing such sounds was more than 8 miles away. Any sound heard at this distance and produced near the aircraft before the recording ended would have been recorded.

Using the eyewitnesses' visual and sound observations—combined with tracking data from the radars and infrared data from an intelligence sensor—CIA analysts were able to reconstruct the approximate path of Flight 800 from the instant its recordings ended until it hit the water. The following postulated sequence of events is based on that analysis:

> Just after the initial explosion at 831:07.5 PM, the aircraft pitched up abruptly and climbed several thousand feet from its cruise altitude of 13,800 feet to a maximum altitude of about 17,000 feet. This is consistent with information provided by National Transportation Safety Board and Boeing engineers indicating that the front third of the aircraft, including the cockpit, separated from the fuselage just two to four seconds after the initial explosion. This significant sudden loss of mass from the front of the aircraft caused the rapid pitch-up.
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> The initial explosion was not seen by any known eyewitness. But the subsequent fire trailing from the aircraft was clearly visible to many of the closest eyewitnesses on the land and sea, and some of the eyewitnesses in other aircraft. The rising, burning aircraft is consistent with what some eyewitnesses described as "an ascending, bright white light resembling a flare or firework."

Shortly after Flight 800 reached the apex of its ascent—about 15 seconds or so after the initial explosion—a second explosion on the aircraft occurred. This explosion was clearly visible to many eyewitnesses, and often was described as "a small fireball." It was not as loud as the initial explosion, but was clearly audible more than 10 miles away.

Following this second explosion, the aircraft went into a very steep and rapid descent, falling 2 miles and traveling horizontally almost 2 miles in less than 25 seconds. As the aircraft descended, it produced an increasingly visible fire trail. When it reached an altitude of about 1 mile—42 seconds after the initial onboard explosion—the aircraft's left wing separated from the fuselage, releasing the unburned fuel in the left wing's fuel tanks. The fuel's subsequent ignition and burning produced a dramatic fireball visible to eyewitnesses more than 40 miles away, and detected by an infrared sensor aboard the US Defense Support Program (DSP) missile warning satellite.

About 50 seconds after the initial explosion—eight seconds after the left wing detached—the aircraft and detached wing hit the water.

CIA analysts developed the characterization above using technical data and accounts from the few eyewitnesses who were relatively close to the disaster, and who provided detailed descriptions of what they saw and heard. This portrayal then was evaluated against descriptions provided by almost 200 additional eyewitnesses.

Not surprisingly, most eyewitnesses saw only the most conspicuous segment of the disaster—the ignition of the fuel and resulting fireball in the 10 seconds or so just before the aircraft hit the water. There are three distinctive characteristics analysts used to conclude that these eyewitnesses saw only the end of the aircraft's descent and not a missile.

First, sound from the initial explosion took from 42 to 102 seconds to reach each of the eyewitnesses claiming to have heard sounds associated with the disaster. Therefore, things eyewitnesses reported seeing at about the time when they heard the first sound are known to have taken place well after the first explosion occurred.

Second, many eyewitnesses described only things happening within about 10 seconds of the time that the left wing detached from the fuselage. This was a very well-defined event, resulting in two distinct fireballs falling to the ocean. The left wing is known to have detached about 42 seconds after the initial explosion.

And third, many eyewitnesses described only things happening within about 10 seconds of the time that they observed a large fire or "cascading" flames. These flames could only be from the burning fuel released and ignited after the left wing detached.

Using the above process of elimination, the majority of observations can be demonstrated to have occurred well after the initial explosion. Consequently, none of these observations can be of a missile which caused this explosion.

The remaining eyewitness accounts describe events fully consistent with observations expected if only the aircraft in various stages of crippled flight were being observed. There is nothing in this last category of eyewitness statements that provides any evidence that a missile was used to shoot down Flight 800.

Indeed, several eyewitnesses, confident that they had seen a missile destroy an aircraft, were puzzled that they hadn't actually seen the aircraft before the missile hit it. Only a few eyewitnesses described seeing the aircraft at all, even though it should have been illuminated by the setting sun and clearly visible to any observer witnessing a missile approach and destroy it. The fact that only a few eyewitnesses reported seeing the aircraft—which should have been readily visible—suggests that many eyewitnesses may have seen only the crippled aircraft without realizing it.

Conclusions

CIA analysts do not believe that a missile was used to shoot down TWA Flight 800. To date, there is absolutely no evidence, physical or otherwise, that a missile was employed.

Speculation that a missile was involved originally was put forward based totally on the testimony of eyewitnesses who were attempting to assist the Federal Bureau of Investigation and National Transportation Safety Board as these agencies probed into the possible causes of the tragedy. Without the assistance of these eyewitnesses, the accounting given here would not have been possible.

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